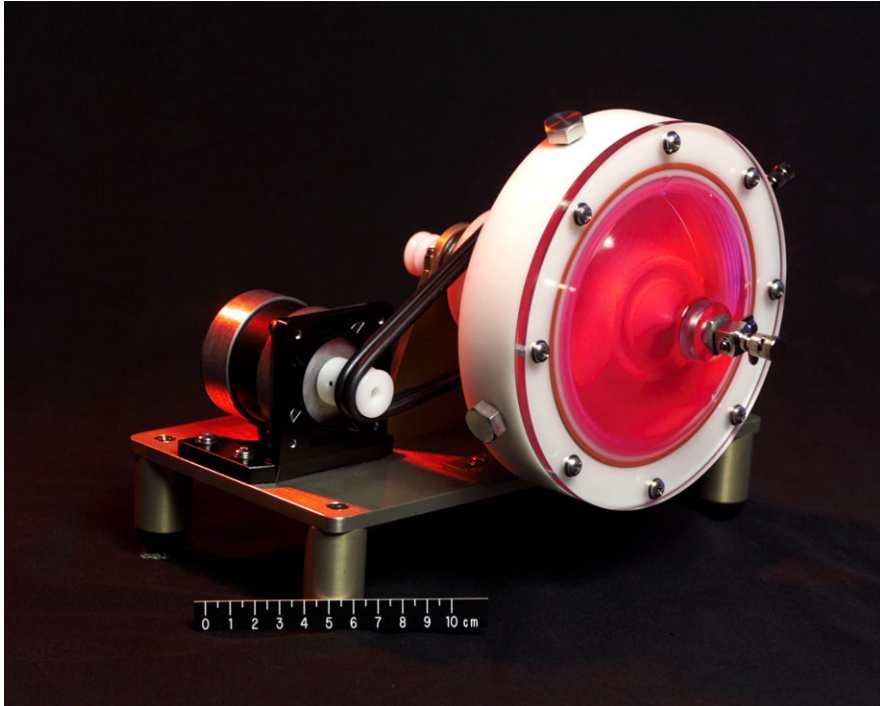


Hydrodynamic Focusing Bioreactor (HFB)



Engineering Description

The HFB is a rotating wall bioreactor which provides a unique hydrofocusing capability that simultaneously enables a low-shear culture environment and a unique hydrofocusing-based "herding" of suspended cells, cell aggregates and air bubbles. The HFB is a rotating dome-shaped cell culture vessel with a centrally located sampling port and an internal rotating viscous spinner attached to a rotating base. The vessel and viscous spinner can rotate at different speeds and in either the same or different directions. Adjusting the differential rotation rate between the vessel and spinner results in a controllable hydrodynamic focusing force. The resultant hydrodynamic force suspends the cells in a low shear fluid environment that supports the formation of delicate three-dimensional tissue assemblies. The three versions of the HFB vessels include the HFB-S flight unit and the HFB-40 and HFB-160 ground units.